PRINCETON

LCD1711

User's Manual

English

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Installation

1.Do not cover or block the ventilation ports on the rear of the monitor.

2.Do not install the monitor close to heat sources such as radiators or air ducts, or in a location exposed to direct sunlight, excessive dust, mechanical vibration,or shock.

Power connection

1.Use the correct power cord for your local voltage.

2.Use an accessible outlet close to the monitor.

3.Do not allow anything to rest on the power cable.

4.Only use the power adapter attached to the monitor.

5.Disconnect the power cable from the power supply if:

5.1 You will not use the monitor for an extended period.

5.2 The cable is damaged or frayed.

5.3 The monitor has been dropped or the cabinet damaged.

5.4 A distinct change in performance indicates a need for servicing.

Maintenance

1.Clean the cabinet and controls with a soft cloth lightly moistened with a mild detergent solution. Do not use any abrasive materials or solvents such as alcohol or benzene.

2.Do not rub, touch, or tap the surface of the screen with sharp or abrasive items such as pens or screwdrivers, as the screen may scratch.

3.Do not insert objects or spill liquids into the ventilation ports on the monitor's rear, as fire, electric shock, and / or unit failure may result.

Transporting the monitor

1.When transporting the monitor for repair or shipment, fold the base of the monitor back until it becomes straight. Then wrap the monitor and its attachments with the original carton and packing materials.

Package contents

Before beginning, ensure that the carton contains the following items:

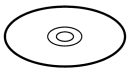
1.LCD Monitor

2.Power cord (The plug may vary according to the electrical standard for your area)

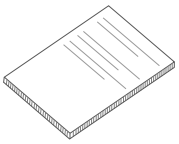
3.Video Signal Cable (Analog, D-SUB Cable)

4.Audio cable (optional)

5.CD-ROM (Contains the driver of the monitor, this user's manual and other information)



6.Quick Installation Guide



Installation of First Use

1.The installation of the monitor is very simple. What you need to do is to take the monitor from the packing box and remove all the packing materials. And then put the monitor on the desk carefully; fold the monitor base, so that the monitor can stand on the desk properly. Next, adjust the monitor to a desired position according to the seat and other factors.

Identifying parts and controls

1.The LED indicator and control buttons as following

2.The connection ports as following:

Functions of the buttons and indicator:

Button	Functions
MENU ⏻	1.Turn on the monitor 2.Activate the OSD control menu 3.Select the specific function 4.Turn off the monitor by pressing the button for 3 seconds
⊕	1.Activate the Volume control menu, and increase the value (optional) 2.View the next function in the main OSD menu clockwisely 3.Increase the value of specific function which has been selected
⊖	1.Activate the Volume control menu, and decrease the value (optional) 2.View the next function in the main OSD menu counter-clockwisely 3.Decrease the value of specific function which has been selected
⊕ & ⊖	1.Optimize the picture performance automatically
LED indicator ●	1.Green color indicates that the monitor is in “active” mode (normal operation). 2.Amber color indicates that the monitor is in “sleeping” mode (power saving mode or no signal input). 3.Not lit indicates that the monitor is in “off” mode (monitor power off).

Setup

1.Connecting video

(Note: Before connecting computer, ensure the resolution and refresh rate of the computer do not exceed the following settings - resolution: 1280*1024, refresh rate: 75Hz.)

1.1 Turn off your computer

1.2 Connect the video signal cable to the VGA port of your PC, tighten the screws on the connector onto the computer

1.3 Connect the other end of video signal cable to the VGA-IN port at the back of the monitor, tighten the screws on the connector onto the monitor

2.Connecting power

2.1 Plug the female end of the power cord in to the AC-IN port at the back of the monitor

2.2 Plug the male end of the power cord into a power outlet

3.3 Connecting audio (optional)

3.1 Plug the audio cable into the AUDIO port at the back of the monitor

3.2 Plug the other end of the audio cable into your computer or other audio source

4.Turning on the computer

5.Pressing the ⏻ button at the back of the monitor to turn on the monitor

6.Removing the protection film from the monitor

You should be able to see the picture now. If not, refer to “Troubleshooting” section.

Customizing your Monitor

The On Screen Display (OSD) system provides a full range of customizable tools to optimize your display.

Important:	While full customization is available, we strongly recommend using the Auto Adjustment function, which are preset to fully optimize your monitor's performance. Simply presses the ⊕ & ⊖ buttons simultaneously to engage the Auto Adjustment. It is also recommended that you execute the function following any change made to your display from your computer.

Working with OSD Group

1. Press Menu ⓘ button to activate the OSD menu.

2. Select the icon from the OSD menu with the ⊕ & ⊖ button.

3. Press Menu ⓘ button to confirm the selection of specific function

4. Press ⊕ or ⊖ to adjust the setting values.

5. Press Menu ⓘ button to exit from the sub-menu.

6. Press ⊕ or ⊖ to select the Exit icon, and then press the Menu ⓘ button to exit from the OSD menu.

Introduction to Hotkeys

1.Auto Adjustment

While the OSD menu is not shown, press ⊕ & ⊖ buttons simultaneously to optimize the picture performance automatically (You may also use the OSD control to activate the Auto Adjustment function. See OSD Menu and Icon List section)

2.Volume Control (optional)

While the OSD menu is not shown, press ⊕ or ⊖ button to increase or decrease the audio volume level.

OSD Icon List

Icon	Functions	Detail
	Auto Adjustment	Optimize the picture performance automatically (you may also press _ and _ buttons simultaneously, while the OSD menu is not shown, to activate the function)
	Brightness	Adjust the luminance level of the screen
	Contrast	Adjust the contrast level (black to white ratio) of the screen
	Sharpness	Adjust the sharpness of the screen
	Clock	Adjust the monitor internal sampling clock rate
	Phase	Adjust the monitor internal signal phase
	Horizontal Position	Shift the position of the screen left or right
	Vertical Position	Shift the position of the screen up or down
	Color Temperature	Select the setting of screen color – Cool, Warm or User
	Cool (9300K)	Select the setting of screen color to be bluish white.
	Warm (6500K)	Select the setting of screen color to be reddish white
	User	Adjust the setting of screen color per user’s preference
	R	Adjust the percentage of red color.
	G	Adjust the percentage of green color.
	B	Adjust the percentage of blue color
	OSD Menu Language	Select your own preference of language of OSD menu. There are 9 languages available – English, German, French, Italian, Spanish, Japanese, Simplified Chinese, and Traditional Chinese.

	OSD Menu Position	Adjust the position of OSD menu on the screen.
	Power Saving Mode	Select between Standard and Advanced power saving modes. See addendum for details.
	Standard	Fulfill EPA Energy Star power management requirement
	Advanced	Activate monitor Life-Extension function
	Recall Factory Preset	Reset monitor parameters back to factory preset values.
	Exit	Disable the OSD menu

Troubleshooting

Symptom	Check Items
1.No picture 2.LED indicator (at the right side of the monitor) is not lit	1. Check if the monitor is turned on (press the button ⏻ again). 2. Check if the power cord is properly connected to the monitor and power outlet. 3 .Check if there is electricity coming from the power outlet (use another device to check for power).
1.No picture 2.LED indicator (at the right side of the monitor) is orange	1 Check if your computer is turned on. 2 Ensure the computer is not in power saving mode (move the mouse or press a key on the keyboard to wake up the computer). 3 Check if the video signal cable is properly connected to the monitor and computer.
1.Picture shows “No Signal Input”	1 Check if your computer is turned on. 2 Check if the video signal cable is properly connected to the monitor and computer.
1.Picture shows “Input Signal Out of Range”	1. Ensure that the resolution and/or refresh rate is set correctly. (See item 2.1 of Monitor Installation section)
1.Picture not clear	1. Press the ⊕ & ⊖ buttons simultaneously to activate the Auto Adjustment function 2 .Check if the video signal cable is properly connected to the monitor and computer. 3. Adjust the screen resolution and refresh rate of your computer to SXGA (resolution: 1280*1024, refresh rate: 60Hz) for the best performance

Technical Features and Specifications

Item		Description
LCD Display		17" TFT active matrix panel
Display Size		337.92(H) x 270.336(V) mm
Pixel Pitch		0.264(H) x 0.264(V) mm
Resolution	Maximum	SXGA 1280 x 1024 @75Hz
	Recommended	SXGA 1280 x 1024 @60Hz
Max. Display Color		16.2M colors
Brightness		300 cd/m2 (typ.)
Contrast Ratio		500¡G1 (typ.)
Viewing Angle (CR_5)	L/R	160o (typ.)
	U/D	160o (typ.)
Response Time (Tr+Tf)		12 ms (typ.)
Signal Input	Analog	D-sub 15 pin
Input Frequency Range		Horizontal: 31.5KHz to 80KHz
		Vertical: 56Hz to 75Hz
LED Indicator		Standby: Amber / Active: Green
VESA Mounting Hole		75 x 75 (mm)
Plug & Play		VESA DDC 1/2B compliance
Speakers (Optional)		1W x 2
OSD Controls		3 buttons at back (Power/Menu, Adjustment +/-)
OSD Functions		Auto Adjustment, Brightness, Contrast, Sharpness, Phase, Clock, H. Position, V. Position, Color Temperature, Power Saving Mode, OSD Menu Position, OSD Menu Language, Recall, Volume (optional)
OSD Language		9 languages (including English, German, French, Italian, Spanish, Japanese, Simplified Chinese, Traditional Chinese)
Power Input		AC 100~240V , 47Hz~63Hz
Power Consumption		Active: < 35W / Standby: < 1W
Color		Silver or Black
Operating Conditions	Temperature	5°C to 40°C (°F to°F)
	Humidity	20%-80% (No Condensation)
	Altitude	10,000 fts
Storage Conditions	Temperature	-20°C to 60°C (-4°F to 140°F)
	Humidity	5%-90% (No Condensation)
	Altitude	40,000 fts
Dimensions		380(W) x 387(H) x 190(D) mm
Package Dimensions		438(W) x 516(H) x 110(D) mm
Net Weight		3.4 kg
Gross Weight		4.7 kg
Certification		UL, CE, TUV/GS, FCC-B, BSMI, CCC, Energy Star, TCO'99 (optional)

Interface Frequency

1.The following frequency range is the working period. If the entered mode between below period but not match the frequency of supported timing, display optimization would not be assured. If the entered mode is out of the working period, the display will be blanking (just show “Input Signal Out Of Range”) then go to power saving.

2.Basically, mode judgment is regardless the sync polarity except both or more modes that are all belong to the supported timing list and could be judged by sync polarity only.

3.At the meantime, real entered frequency of the supported timing is not requested exactly.

4.Normalization of VGA card’s deviation will be acceptable.

5.Horizontal Frequency 30 KHz---80 KHz

6.Vertical Frequency 50 Hz---75 Hz

Supported timing list

1.If the selected timing is NOT included in table below, this LCD monitor will use the most suitable available timing.

Resolution	Pixel Clock	H Frequency	H Total	H BP	H Width	H Size	H Frequency
640X350@50Hz	25.175M	31.469KHz	800	48	96	4.000	50.030Hz
640X350@60Hz	25.175M	31.469KHz	800	48	96	4.000	59.941Hz
640X350@70Hz	25.175M	31.469KHz	800	48	96	4.000	70.087Hz
720X350@50Hz	28.322M	31.469KHz	900	54	108	4.000	50.030Hz
720X350@60Hz	28.322M	31.469KHz	900	54	108	4.000	59.941Hz
720X350@70Hz	28.322M	31.469KHz	900	54	108	4.000	70.087Hz
640X400@50Hz	25.175M	31.469KHz	800	48	96	4.000	50.030Hz
640X400@50Hz	21.050M	24.823KHz	848	84	64	4.000	56.416Hz
640X400@50Hz	25.175M	31.469KHz	800	48	96	4.000	59.941Hz
640X400@50Hz	25.175M	31.469KHz	800	48	96	4.000	70.087Hz
720X400@50Hz	28.322M	31.469KHz	900	54	108	4.000	50.030Hz
720X400@50Hz	28.322M	31.469KHz	900	54	108	4.000	59.941Hz
720X400@50Hz	28.322M	31.469KHz	900	54	108	4.000	70.087Hz
640X480@50Hz	25.175M	31.469KHz	800	48	96	4.000	50.030Hz
640X480@60Hz	25.175M	31.469KHz	800	48	96	4.000	59.941Hz
640X480@66Hz	30.240M	35.0KHz	864	96	64	4.000	66.667Hz
640X480@70Hz	30.284M	36.052KHz	840	128	40	4.000	10.004Hz
640X480@72Hz	31.500M	37.861KHz	832	128	40	4.000	72.810Hz
640X480@75Hz	31.500M	37.500KHz	840	120	64	4.000	75.000Hz
800X600@56Hz	36.000M	35.156KHz	1024	128	72	4.000	56.250Hz
800X600@60Hz	40.000M	37.879KHz	1056	88	128	4.000	60.317Hz
800X600@70Hz	48.484M	46.619KHz	1040	64	126	4.000	69.998Hz
800X600@72Hz	50.000M	48.007KHz	1040	64	120	4.000	72.188Hz
800X600@75Hz	49.500M	46.875KHz	1056	160	80	4.000	75.000Hz
832X624@75Hz	57.283M	49.725KHz	1152	224	64	4.000	74.550Hz
1024X768@60Hz	65.000M	48.363KHz	1344	160	136	4.000	60.004Hz
1024X768@70Hz	75.000M	56.476KHz	1328	144	136	4.000	70.069Hz
1024X768@72Hz	78.472M	57.700KHz	1360	144	136	4.000	72.125Hz
1024X768@75Hz	78.750M	60.023KHz	1312	176	96	4.000	75.029Hz

Resolution	Pixel Clock	H Frequency	H Total	H BP	H Width	H Size	H Frequency
1152X864@60Hz	80.000M	54.054KHz	1480	192	96	4.000	59.270Hz
1152X864@70Hz	94.499M	63.851KHz	1480	200	96	4.000	70.012Hz
1152X864@75Hz	108.000M	67.500KHz	1600	256	128	4.000	75.000Hz
1152X870@75Hz	100.000M	68.681KHz	1456	144	128	4.000	75.061Hz
1152X900@66Hz	92.940M	61.795KHz	1504	194	128	4.000	65.950Hz
1152X900@76.2Hz	105.590M	71.732KHz	1472	208	96	4.000	76.068Hz
1152X900@76.2Hz	108.000M	60.000KHz	1800	312	112	4.000	60.000Hz
1280X960@60Hz	126.000M	70.000KHz	1800	312	112	4.000	70.000Hz
1280X960@70Hz	135.000M	75.000KHz	1800	312	112	4.000	75.000Hz
1280X960@75Hz	108.000M	63.981KHz	1688	248	112	4.000	60.020Hz
1280X1024@60Hz	119.839M	70.660KHz	1696	224	160	4.000	66.472Hz
1280X1024@67Hz	127.000M	74.882KHz	1696	224	160	4.000	69.853Hz
1280X1024@70Hz	129.557M	76.752KHz	1688	248	144	4.000	72.000Hz
1280X1024@72Hz	134.999M	79.976KHz	1688	248	144	4.000	75.024Hz

Note:

When the input display mode is not 1280 X 1024, the image is smoothly expanded to1280 X 1024 dots with scaling engine. After expansion from 650 X 350, 640 X 400,640 X 480, 720 X 400, 832 X 624, 800 X 600, and 1024 X 768 resolution, the text may look not so sharp, and the Graphics may look not so proportional.

Advanced Power Saving Mode

1.Background

The traditional monitors have the function of electricity-saving dormancy. But the interval of dormancy is difficult to decide. If the interval is long, the purpose of saving electricity can not be achieved. While the interval is short, your computer and LCD monitor would be dormant often. When the LCD monitor becomes dormant, the back lights will be turned off immediately. The frequent turn-on and turn-off of lights will result in the lightness uneven and even shortening the life of the lights.

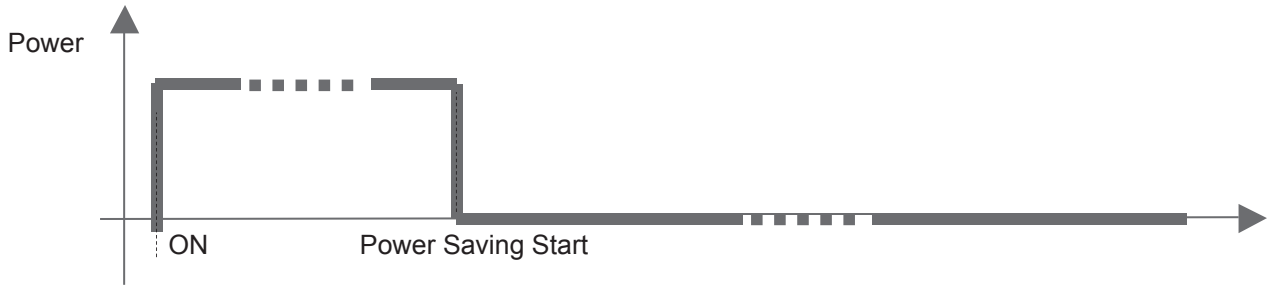
2.Our solution to the dilemma – Monitor Life-Extension function

In view of that, we have designed the function of Monitor Life-Extension. Once you select the option of “Advanced Power Saving Mode” in the OSD menu, and then you can not only save electricity, but extend the life of the lights.

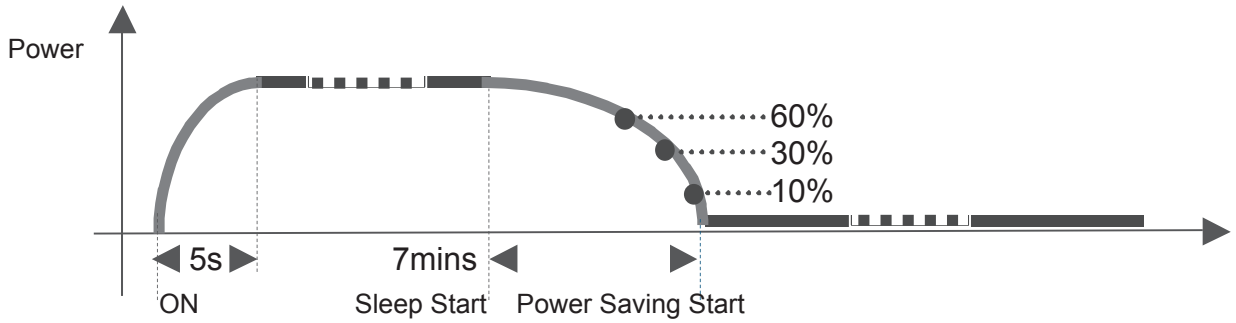
3.Working principle of the Monitor Life-Extension function

To minimize the impact of frequent turn-on and turn-off of LCD monitor, the Life-Extension function decreases the electricity supplied to the back-light of LCD monitor gradually, instead of cut it off right away when PC enters sleeping or off mode. Please see following comparison graphics for details.

* Standard Power Saving Mode (without Monitor Life-Extension function)



* Advanced Power Saving Mode (with Monitor Life-Extension function)



This “Slow-Start-n-Delay-Off” approach minimizes the transit of electricity and temperature caused by the turn-on and turn-off of LCD monitor. Therefore, the decay of backlights of TFT-LCD can be controlled in the certain level which is much less than it was.

4.The side effect of the Monitor Life-Extension function (why not preset Advanced Power Saving Mode as default?)

According to the request of EPA (US Environmental Protection Agency) to power management of monitors, the power consumption of the monitor must go down to below 3 watts within 3 seconds after the monitor steps in power saving mode. But the Life-Extension function decreases the electricity supplied to the backlights of LCD monitor gradually. Therefore, the Monitor Life-Extension function has conflict with the requirement of EPA in the first 7 minutes after entering sleeping mode. Even though,comparing the advantages of both conditions, we still recommend you strongly to set your monitor in Advanced Power Saving mode.

5.I How to engage the Monitor Life-Extension function?

You may simply use the OSD control to activate the Monitor Life-Extension function.

1. Press the Menu ⓘ button to activate the OSD menu
2. Press ⊕ or ⊖ button to select the Power Saving Mode icon.
3. Press the Menu ⓘ button to confirm the selection
4. Press ⊕ or ⊖ button to select the “Advanced” option in the Power Saving Mode function.
5. Press the Menu ⓘ button to confirm the selection
6. Press ⊕ or ⊖ button to select the Exit icon.
7. Press the Menu ⓘ button to exit the OSD menu

FCC compliance

1.This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation, If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

3.Reorient or relocate the receiving antenna.

4.Increase the separation between the equipment and receiver.

5.Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

6.Consult the dealer or an experienced radio/TV technician for help.

WARNING:	Any unauthorized modification to this equipment could result in the revocation of the authorization to operate the equipment and void the product warranty.

Congratulations!

You have just purchased a TCO'99 approved and labeled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and also to the further development of environmentally adapted electronics products.

Why do we have environmentally labeled computers?

In many countries, environmental labeling has become an established method for encouraging the adaptation of goods and services to environment. The main problem, as far as computers and other electronics equipment are concerned, is that environmentally harmful substances are used both in the products and during their manufacture. Since it is not so far possible to satisfactorily recycle the majority of electronics equipment, most of these potentially damaging substances sooner or later enter nature.
There are also other characteristics of a computer, such as energy consumption levels, that are important from the viewpoints of both the work (internal) and natural (external) environments. Since all methods of electricity generation have a negative effect on the environment (e.g. acidic and climate-influencing emissions, radioactive waste), it is vital to save energy. Electronics equipment in offices is often left running continuously and thereby consumes a lot of energy.

What does labeling involve?

This product meets the requirements for the TCO'99 scheme which provides for international and environmental labeling of personal computers. The labeling scheme was developed as a joint effort by the TCO (The Swedish Confederation of Professional Employees), Svenska Naturskyddsforeningen (The Swedish Society for Nature Conservation) and Statens Energimyndighet (The Swedish National Energy Administration).
Approval requirements cover a wide range of issues: environment, ergonomics, usability, emission of electric and magnetic fields, energy consumption and electrical and fire safety.
The environmental demands impose restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs (freons) and chlorinated solvents, among other things. The product must be prepared for recycling and the manufacturer is obliged to have an environmental policy which must be adhered to in each country where the company implements its operational policy. The energy requirements include a demand that the computer and/or display, after a certain period of inactivity, shall reduce its power consumption to a lower level in one or more stages. The length of time to reactivate the computer shall be reasonable for the user.
Labeled products must meet strict environmental demands, for example, in respect of the reduction of electric and magnetic fields, physical and visual ergonomics and good usability.
Below you will find a brief summary of the environmental requirements met by this product. The complete environmental criteria document may be ordered from:

TCO Development

SE-114 94 Stockholm, Sweden
Fax:+4687829207
Email (Internet): development@tco.se
Current information regarding TCO'99 approved and labeled products may also be obtained via the Internet, using the address: http://www.tco-info.com/

Environmental requirements Flame retardants

Flame retardants are present in printed circuit boards, cables, wires, casings and housings. Their purpose is to prevent, or at least to delay the spread of fire. Up to 30% of the plastic in a computer casing can consist of flame retardant substances. Most flame retardants contain bromine or chloride, and those flame retardants are chemically related to another group of environmental toxins, PCBs.
Both the flame retardants containing bromine or chloride and the PCBs are suspected of giving rise to severe health effects, including reproductive damage in fish-eating birds and mammals, due to the bio-accumulative processes. Flame retardants have been found in human blood and researchers fear that disturbances in foetus development may occur.
The relevant TCO'99 demand requires that plastic components weighing more than 25 grams must not contain flame retardants with organically bound bromine or chlorine. Flame retardants are allowed in the printed circuit boards since no substitutes are available.

Cadmium*

Cadmium is present in rechargeable batteries and in the colour-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries, the colour-generating layers of display screens and the electrical or electronics components must not contain any cadmium.

Mercury

Mercury is sometimes found in batteries, relays and switches. It damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries may not contain any mercury. It also demands that mercury is not present in any of the electrical or electronics components associated with labeled unit.

CFCs (freons)

The relevant TCO'99 requirement states that neither CFCs nor HCFCs may used during the manufacture and assembly of the product. CFCs (freons) are sometimes used for washing printed circuit boards. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on earth of ultraviolet light with e.g.increased risks of skin cancer (malignant melanoma) as a consequence.

Lead**

Lead can be found in picture tubes, display screens, solders and capacitors. Lead damages the nervous system and in higher doses, causes lead poisoning. The relevant TCO'99 requirement permits the inclusion of lead since no replacement has yet been developed.

* Bio-accumulative is defined as substances which accumulate within living organisms.

** Lead, Cadmium and Mercury are heavy metals which are Bio-accumulative.